

WHAT IS CLAIMED IS:

1. A biodegradable and bioactive glass-ceramic fabricated from a composition consisting of calcium oxide (CaO), silica (SiO<sub>2</sub>), boron oxide (B<sub>2</sub>O<sub>3</sub>), magnesium oxide (MgO), calcium fluoride (CaF<sub>2</sub>) and phosphorus pentoxide (P<sub>2</sub>O<sub>5</sub>).

2. The biodegradable and bioactive glass-ceramic according to claim 1, wherein the composition comprises 41.40~45.75% by weight of calcium oxide (CaO), 35.0~47.62% by weight of silica (SiO<sub>2</sub>), 1.62~14.58% by weight of phosphorus pentoxide (P<sub>2</sub>O<sub>5</sub>), 0.50~14.58% by weight of boron oxide (B<sub>2</sub>O<sub>3</sub>), 0.46~4.14% by weight of magnesium oxide (MgO) and 0.05~0.45% by weight of calcium fluoride (CaF<sub>2</sub>).

3. A biodegradable and bioactive glass-ceramic fabricated by mixing a first glass consisting of 41.03~45.86% by weight of calcium oxide (CaO), 43.97~49.14% by weight of silica (SiO<sub>2</sub>) and 5~15% by weight of boron oxide (B<sub>2</sub>O<sub>3</sub>), and a second glass consisting of 44.7 parts by weight of calcium oxide (CaO), 44.7 parts by weight of magnesium oxide (MgO), 34.0 parts by weight of silica (SiO<sub>2</sub>), 16.2 parts by weight of phosphorus pentoxide (P<sub>2</sub>O<sub>5</sub>) and 0.5 parts by weight of calcium fluoride (CaF<sub>2</sub>) wherein the mixing ratio of the first glass to the second glass is between 90:10 and 10:90 on a weight basis.

4. A method for fabricating a biodegradable and bioactive glass-ceramic, comprising:

preparing a first glass consisting of 41.03~45.86% by weight of calcium oxide (CaO), 43.97~49.14% by weight of silica (SiO<sub>2</sub>) and 5~15% by weight of boron oxide (B<sub>2</sub>O<sub>3</sub>), and a second glass consisting of 44.7 parts by weight of calcium oxide (CaO), 44.7 parts by weight of magnesium oxide (MgO), 34.0 parts by weight of silica (SiO<sub>2</sub>), 16.2 parts by weight of phosphorus pentoxide (P<sub>2</sub>O<sub>5</sub>) and 0.5 parts by weight of calcium fluoride (CaF<sub>2</sub>), respectively;

pulverizing the first glass and the second glass into finely-divided powders having a particle diameter of 1~10μm, respectively;

mixing the first glass powder and the second glass powder to obtain a glass powder mixture, the mixing ratio of the first glass to the second glass being between 90:10 and 10:90 on a weight basis;

molding the glass powder mixture using a press or into a porous body; and

sintering the molded body at 700~900°C.

5. The method for fabricating a biodegradable and bioactive glass-ceramic according to claim 4, wherein the mixing ratio is controlled so as to control the biodegradation

rate.